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**Asset Pricing Models, the Labour Theory of
Value and their Implications for Accounting**

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**This paper is circulated for discussion purposes only and its contents should be
considered preliminary.**

Abstract

The paper analyses the social components of two theories of central importance to accounting and finance. It shows that modern finance theory is unable to account for value and that although its canon and major assumptions successfully obfuscate real social relations, they do not provide an alternative explanation of those relations.

The paper also argues that although Marx's *Capital* uses accounting formulations to analyse capitalism, it does not provide a means of advancing accounting theory per se. In the spirit of further extending the analytical approach, Marx's method is developed to include managerial and labour rents and the socialisation of capital, which when coupled with analytical techniques of modern finance and accounting, provides a basis for the critical analysis of capitalism. The paper shows that, by analysing the dialectical inter-relation of the means of production with the social relations of production, Marx's method can be extended to provide an understanding of several important aspects capitalism.

Asset Pricing Models, the Labour Theory of Value and their Implications for Accounting'

Introduction

The objective of this paper is to analyse differences and similarities in the classical and neo-classical conceptions of value and to examine their implications for accounting. Specifically a comparison is conducted between the labour theory of value as advocated by the classical economists and in particular, Marx and the capital asset pricing model (CAPM) which has become a central theorem in neo-classical capital market analysis. Different strands of thought, Marxist and Neo-Classical, might question the validity of such a project and certainly many of the assumptions required to carry it through. Rather than reject important elements of value theory outright, the approach adopted here is to retain and integrate them insofar as they are consistent with the propositions advanced. Therefore, the paper works with the labour theory of value, the law of the tendency of the rate of profit to fall, labour process theory, and the notion of objectivity. Critical scholars, including Marxists have rejected or de-emphasised one or more of these elements (for a discussion and examples see Rowlinson and Hassard, 2001, pp.86-88, Tinker, 1999, p.655-6). The paper also works with neo-classical categories, particularly the elements of risk contained within the conventional CAPM insofar as they are useful. However, modern finance theory has not developed a theory of value independent from assumptions about capital itself. Therefore, whilst these elements have descriptive value they can also be represented as vulgarisations¹ of underlying social relationships. Accordingly, the objective is to show that the CAPM is compatible with the labour theory of value, not that the labour theory of value is compatible with the CAPM.

¹ Vulgarisation refers to Marx's characterisation of economic methods, which concentrates only on surface phenomena, eg supply and demand, and neglects structural value and class relations (Desai, 1996, p.574).

Such relationships have important implications for Marxism and the uses of accounting. The relationship between Marxism and accounting is problematic and occasions a great deal of debate. The extent of these divisions is motivation enough for this paper's objective, which is to re-integrate the main tenets of Marxist theory referred to earlier. Also because critics have used the failure of Marxist accountants to produce alternative bookkeeping and financial reporting guidelines to undermine the credibility of Marxist analysis (Solomons, 1991), it is important to be clear about the feasibility of a Marxist system of accounting. Recently Bryer (1999) has attempted to use Marx's circuits of capital to construct a general theory of accounting. In turn, this approach has been criticised for its intended reliance for accounting allocations on unobservable socially necessary labour time whilst at the same time doing little to expose the power relations that exist under capitalism (Macve, 1999). The assumed objective of accounting 'to hold management accountable to total social capital', i.e. to the capital markets in Bryer's framework has been dismissed as an 'enigmatic assertion' (Tinker, 1999, p.644). As a consequence of the debates, the project of establishing a Marxist system of accounting remains somewhat mired.

It might be sensible to conclude at this stage that such a system is not a particularly worthwhile project and this paper considers further reasons why that may be the case. That is not to say however that Marxist analysis cannot play an important role in offering critical understanding of modern accounting, finance and related problems and applications. Even though there has been considerable disagreement in recent debates, there are nonetheless important strands that suggest constructive ways forward. Bryer's notion of managerial accountability to total social capital is useful in its implication for two reasons.² First it offers an opportunity to examine total social capital from the perspective of finance theory and secondly to examine whether a social analysis of financial risk might offer a critical perspective of existing finance paradigms as well as an extension of Marx's model. As joint stock companies and stock market capitalism were in their infancy, Marx's analysis was inevitably incomplete, although his analytical method offers opportunity for a logical development in these areas. Specifically, whereas Bryer (1999 and elsewhere) uses the term social capital as a method of empirical classification, social capital might be

² Whether Bryer's assertion corresponds directly to Marx's intended meaning is a separate debate.

elaborated further in terms of the process of socialisation or the dialectical upper limit of the process (Toms, 2002). Explaining the process further is an important outcome of the model presented in this paper.

A further aspect of disagreement amongst Marxist scholars is the role of the labour theory of value. On the one hand, notably in the recent work of Bryer (1999), labour values are retained as the basis of objective asset valuations. As a rejoinder to Bryer in the context of the above debates, Tinker (1999) suggests that the theory gives undue emphasis to an economistic reading of Marx, arguing that Marx never actually refers to a ‘theory’ (after Marsden, 1997). Following Cleaver (1979), Aronowitz (1981) and Baran and Sweezy (1966), he argues that extra-economic forces, social, political and cultural, shape the accumulation process, explaining varieties of capitalism and that Marx’s economic categories such as profit, wages and rents should be seen as socially relative phenomena (Tinker, 1999, p.655). Although the positions of Bryer and Tinker may seem irreconcilable, the current paper attempts to integrate elements of both. Abandoning the labour theory of value seems unjustified in the absence of alternative theories of value. Its retention leaves open an avenue that is still likely to be productive from an accounting perspective, given that valuation is a fundamental question of accounting theory. Consistent with this approach, price (and by extension the price of a financial asset) is not only a poor proxy for value but also distorts social reality (Tinker, 1999). A crucial question is therefore the specific cause and degree of distortion. For the purposes of this paper, the difference between price and value is termed ‘rent’. By offering a social analysis of such rents, the model presented below offers an extension of Marx’s model incorporating the labour theory of value consistent with observed distributions of income under differing varieties of capitalist hegemony.

A further consequence of this integration approach is that it is consistent with the base-superstructure reading of Marx. Whilst the criticisms of this approach from a Neo-Foucauldian perspective are worthy of acknowledgement (Miller, 1987; Miller and O’Leary 1994), whether or not the application of the dichotomy is an ‘economistic reading’ of Marx is open to debate (For a discussion, see Tinker, 1999, pp.651-52). Other Marxist scholars and Non-Foucauldians (Cohen, 2000, Rigby, 1998) retain base and superstructure as analytical categories, although there is some

dispute as to what each should contain (Meiksins Wood, 1981, Rigby, 1998) and whether or not we should go beyond these categories (Tinker, 1999, p.649, Marx, 1971, p.20 and Cohen, 2000, p.26). The current paper offers further perspective on these issues.

The intended contribution of the paper is therefore in summary to present an analytical extension of Marx that deals with fundamental aspects of modern accounting and finance theory. It is based upon a social analysis of rent, which allows some reinterpretation of the labour theory of value and accommodation of the base superstructure dialectic including a theory of socialisation. Finally, it aims to comment on the feasibility of a Marxist system of accounting under capitalist conditions. In short, it aims to show that whilst Marxism is unlikely to be a useful tool for standard setters or trainee accountants trying to understand double entry, it remains a powerful tool for the critical analysis of capitalism as a system of economic and political relations.

The paper is organised accordingly in three further sections. The next section develops a theoretical model, which reconciles the underlying rate of profit in production to the realised rate of return on a stock market, through a social analysis of rent. It then goes on to consider several broader aspects of theory, (1) the role of labour rents in the production process (2) the mediation of rents through the socialisation of capital, which are used to explain the interaction of base and superstructure elements in the model. A subsequent section examines the validity of the assumptions used in the simple explanation of the model and possible criticisms of the approach used. It is then suggested that if the model is broadly accepted it can provide useful perspectives for empirical and historical analysis. Illustrative examples are chosen with reference to crisis points at specific historical junctures of capitalism and the roles played by institutions and individuals in developing contradictions (Gramsci, 1971, Tinker, 2002, p.518). In the next section some implications are discussed, including the consequences of the model for immediate problems in accounting and finance theory and practice, such as asset valuation, determinants of the rate of profit and factors influencing the choice of discount rate. These issues have implications for the Cambridge capital controversies, which are also discussed. Finally, there is a discussion of a further important implication: the impossibility of a Marxist system of accounting under capitalist conditions. A final section draws conclusions.

Exploitation, Rents and the Rate of Profit: A Theoretical Model

The intuition of the following analysis is straightforward. It is that economic organisation can be thought of as a philosophical extension of the accountant's balance sheet. On the one side, there is what the firm has, in terms of assets, materials required for production, and on the other is an analysis of who owns those assets. This simple intuition is complicated by the requirement to translate these simple balance sheet categories into processes of economic development and political transformation. Already by separating out 'materials required for production' from the ownership rights embedded in the social relations of production, the model has begun to accept the base superstructure dichotomy which as noted above, is the subject of considerable debate. Many definitions and explanations will therefore be required in order to develop the model. Several assumptions will also be necessary. These are referred to at the appropriate stage of explanation. The narrative begins with a brief review of the problems faced by conventional theorists in the accounting and then the finance literatures. It then reconsiders accounting and then financial market returns in turn from the perspective of social rents. Finally, it shows how the rent-based perspective allows apparently alternative views of financial returns to be reconciled.

Accounting rates of return (ARRs) are often mistrusted in the accounting and finance literature, for example in favour of net present value.³ Important theoretical objections have been raised regarding ARRAs because they are according to mainstream financial researchers apparently unrelated to underlying economic profit, or internal rates of return (IRRs) (Fisher and McGowan, 1987). Indeed, there has been a considerable debate as to whether ARRAs can be relied upon at all (for a summary, see Steele 1995).

Notwithstanding this theoretical impasse, many empirical finance researchers remain determined to identify regularities in the determinants of stock market returns. Indeed, stock market investment has been portrayed as a 'triumph of the optimists' (Dimson, Marsh and Staunton, 2002). Pointing to an annualised real return on equities of 9% in the 1950-2000 period (p.224), they suggest that investors, who ignore stock

³ See chapter 1 of any corporate finance text.

market slumps and hold on to their investments, are proved right in the end. There is other evidence of an equity risk premium in the US and in the UK, with a consensus that the premium is of the order of 8% (Dimson and Marsh, 1982, Hussain, Diacon and Toms, 2002). This apparent regularity is very important, for example in the light of its adaptation to capital investment decision making.

Nevertheless, why is there an equity risk premium? Moreover, why should it be 8%, or any other value? Do prices merely reflect future expectations of income, where such expectations follow the mood swings suggested by bubble economics (or behavioural finance theory)? Or as Seager (1912, pp.835-7) put it: ‘...[it is] assumed that income streams, like mountain brooks, gush spontaneously from nature’s hillsides and that the determination of interest depends entirely upon the mental reactions of those fortunate enough to receive them?...The whole productive process is taken for granted’. Such taking for granted permeates the whole finance literature that has arisen on the question of computing accounting rates of return that might correspond to economic profit (eg Shinnar et al, 1989, Stark, 1994).⁴

An alternative view, developed in detail below, of apparent compensation of investors for extra risk can be derived by analysing the link, which otherwise appears tenuous, between underlying accounting returns and stock market prices. According to this view, there is a central role for ARR as a starting point, since the realised rate of accounting profit is linked to the underlying process of value creation. In Marx’s analysis, the underlying rate of return is given by the rate of surplus, S to total capital $V + C$, where V is variable capital and C is constant capital. The rate is fixed by the rate of exploitation S/V , which reflects the socially necessary labour time required for the production of S and the organic composition of capital, V/C . Under conditions of technical change, the requirement to reproduce capital through realisation of surplus and repurchase of means of production requires a replacement cost valuation of assets and the computation of the corresponding ARR.

In this model, the relationship between stock market returns and underlying ARR is confounded by the existence of rent. Marx uses Ricardo’s definition of differential rent as ‘the difference between the produce obtained by the employment

⁴ In these and similar studies, particular patterns of cash flow are used as model input assumptions.

of two equal quantities of labour and capital' (Marx, 1984, p.649). In the current paper, this notion of rent is applied specifically to circumstances where knowledge is unevenly distributed within firms and corresponding capital markets. It follows that rents might therefore accrue to firm insiders or financial market insiders based on access to superior information. Realised returns accruing to share holders in a financial market therefore reflect both the underlying ARR plus or minus realisable managerial and labour rents.⁵

However, it is also apparent that total realised returns (TRRs) will differ from ARR for at least two further reasons. First, the capital circulation process involves inter-mediation and associated transaction costs, or costs of circulation (Marx, 1978), arise as deductions from the underlying ARR. Second, firms will vary in efficiency and therefore reduction of required labour time to the socially necessary level will be subject to an adjustment process (Mohun, 1996, p.504). Where adjustment is slow, there is a relative gain to labour, accruing as labour rent. Here lies the first problem for a Marxist system of accounting, in that socially necessary labour in the S/V ratio is unobservable (Macve, 1999). In theory, this should be the S/V for the most efficient firm, but in practice, it is often taken as the social average S/V.⁶ If the economy characterised by multiple product industries and firms, this amounts to a weighted-average. Where this measure is advocated, it is assumed that observable surpluses and wages to labour will suffice. However, these are lower than the real S/V through the deduction of circulation costs from S. Because circulation costs also vary according to industry and product mix, it is easy to see that the average S/V even at industry level, is likely to be a poor proxy in estimating underlying ARRs.

At first sight, this seems to make the task of reconciling ARRs to stock market returns more difficult. However, risk aversion can be reinterpreted from a social perspective. According to this argument, risk arises from the possibility of variance around a normal rate of return. This rate can be assumed the same as the ARR.

⁵ A further discrepancy arises where a monopolistic firm uses its market power to resist the competitive requirement to replace machinery in response to technical advance, thereby creating 'fictitious' capital (Perelman, 1999, p.724). For simplicity such cases are left out of the analysis at this stage and constant capital prices are assumed.

⁶ Bryer (1999, p.696) suggests 'socially necessary standard costs' correspond to 'modal best practice', where modal firms earn at least the required market rate of return. Average and most efficient co-exist so that firms adjust dynamically to reduce the difference between the average and the most efficient (Mohun, 1996, p.504).

However, the required rate of return differs to the extent that risk-averse investors are faced with the possibility of their expected returns being appropriated as rents by other social groups, namely intermediate traders, managers and workers. At the same time investment opportunity arises from the possibility that rents over and above the ARR can be appropriated from these groups. Expected stock market returns are based on a discount rate that equalises the cash flows associated with the investment, in other words economic income or IRR. In equilibrium conditions, the expected IRR is determined by the risk free rate plus a risk premium, reflecting the systematic component of total risk. Ex post, the realised IRR (or TRR equivalent) will also depend on unsystematic risk.

To develop the model, assume for now that all risk is systematic and comes from a single source, climatic change. Assume also that all firms use the same agricultural input causing their output to vary cyclically with climatic conditions. The only other input is labour at a given intensity, but workers can obtain different employment contracts, based on fixed hours salaries or variable hours piece rates, to varying degrees across the different firms. Systematic risk can now be analysed to highlight the impact of labour input. The intuition is straightforward, if output can vary and labour input varies in exact proportion, the rate of profit is constant, implying a risk transfer from capital to labour and vice versa. In the general case, a firm's beta deviates from one according to the degree of fixed labour cost relative to the market average. This assumption is consistent with the logic in Modigliani and Miller (1958) where there is a linear relationship between beta and the fixed cost of debt and with empirical research showing a similar relationship between beta and operating leverage (for a review see Huffman, 1989) and 'labour' betas and stock returns (Jagnathan and Wang, 1996).⁷ Using Marx's abbreviations in $V + C$, assume all C is fixed and V has a variable labour cost (VLC) component and a fixed labour cost (FLC) component.⁸ For convenience, a single turnover period is assumed for all firms. Given these relationships, rent accrues as an addition to the S that arises from the exploitation of socially necessary labour in proportion to operating leverage, as

⁷ Only financial risk is dealt with here. Because unsystematic risk is a residual category, any disturbance to income that does not arise from the cost structure of the business is classified as specific risk.

⁸ Following convention, fixed costs, including fixed labour costs, only remain fixed within a given range of output and capacity utilisation.

demand and output levels vary. At the level of the individual firm, the rent component rises from the point of view of capital when output and realised sales increase, but accrues to labour if they fall. Insofar as optimal capacity is correlated to socially necessary labour, rent only accrues to labour in the form of slack as output falls and is clawed back by capital as output rises towards the capacity limit.⁹ From the perspective of capital therefore, systematic risk increases directly with the level of fixed cost in labour and capital would therefore be expected to price ex ante IRR accordingly with the addition of the appropriate β , which increases in linear proportion to fixed labour relative to the social average fixed labour component.¹⁰ From labour's perspective, the 'return to labour' is the inverse of this relationship. In general the effect of the trade cycle, for example in the case of a slump, is a reduction in the rate of profit proportionate to the β for any given firm and insofar as labour is a fixed cost the risk associated with a slump is passed exclusively to the capitalist. Labour collects rent as the difference between the actual wage (however low) and the reduced value of labour transferred into production.¹¹ If other fixed cost elements beside labour are introduced, the effect is to magnify the β in proportion to the fixed cost element, including fixed cost loan finance. Together these account for the global β use to compute the appropriate discount rate.

In vulgar economics, these relations appear as a risk/return trade-off. In social reality, capitalists will seek private access to forecast information, for example crop reports, so that labour contracts can be determined in advance and wages are fixed when output is expected to rise and variable when expected to fall. Such information asymmetry gives rise to an additional unsystematic element of risk. Moreover, information asymmetry between participants (informed vs. uninformed investors) is a

⁹ For Baran and Sweezy (1966, pp.89-95) disproportionate changes in surplus are a function of capacity utilisation and the return to capital is equalised through dividend adjustments.

¹⁰ For simplicity of presentation, firms are assumed to have the same organic composition of capital and the same rate of exploitation. However, the relationship between labour cost, beta and rate of return also holds when these assumptions are relaxed.

¹¹ From the above analysis into VLC and FLC it can be seen that $S/(V + C)$ can be extended to $S/(VCL + FCL + C)$. The degree of operating gearing is therefore $(FLC + S)/S$. It also follows that the proportionate accrual of labour rent in conditions of falling output is $FCL/(V + C + S)$ and the inverse is the rent accruing to the capitalist in conditions of rising output. For simplicity the analysis assumes a single period capital turnover.

necessary condition for the capital market to function (Grossman & Stiglitz, 1980). Further asymmetries can arise between the producers of knowledge in the firm and market participants. Technical discoveries, decisions to invest in new processes, to launch new products and so on necessarily create and revise knowledge in the firm ahead of assimilation by capital market participants. In short, information asymmetries produce rents appropriated by either the management or employees of the firm at the expense of shareholders or by capital market participants at the expense of each other. This conclusion is logically consistent with CAPM in which specific risk is the portion of total risk unexplained by market changes and only therefore knowable by insiders. Specific risk therefore proxies for rent, appropriated either by management and labour insiders or by capital market participants as circulation cost. These gains can only be appropriated by outside shareholders to the extent that governance mechanisms are effective, a point returned to below.

To summarise the arguments so far, TRR and total expected return (TER) could be explained by similar decomposition through analysis into rent by social group.

$$TRR = SNARR + R(I, F, M, L) \quad (1)$$

Where *SNARR* is the unobservable socially necessary accounting rate of return and *R* is rent. It should be noted that *R* might take a positive or negative co-efficient depending on the interaction of fixed labour costs, circulation costs and information asymmetries. Where positive, the capitalist investor (I) appropriates the net rent, where negative the appropriation is to financial intermediaries (F), managerial (M) or labour groups (L). TER can be expressed using the standard CAPM formulation:

$$TER = RF + SRP + SR \quad (2)$$

Where *RF* is the risk free rate *SRP* is the systematic risk premium *SR* is firm specific risk.

It follows from the above discussion that managerial and labour rents arise from SR plus the element of risk arising from fixed labour cost $(\beta_{i_{Lab}})^{12}$ component of SRP . The $\beta_{i_{Res}}$ component of SRP comprises systematic risk arising from fixed cost imposed by other capital suppliers. $SNARR$ therefore corresponds to RF plus any risk component not accounted for in SRP . Differences at firm level arise from differences in V/C . Once the insurance system has developed properly, according to Marx, it ensures that ‘risk is in fact the same for all spheres of production’ (Marx, 1984, p.209). Marx therefore argues that the expected rate of return minus the cost of an insurance policy yields the present value of a certainty equivalent (Bryer, 1991, p. 481, 1994, pp. 317-18). In the current model, $SNARR$ corresponds exactly to RF to the extent that the process of labour exploitation S/V is a risk free activity. Mathematically, if all costs are variable, the rate of profit is constant and there is no variance either for the firm, the market aggregate or both, and beta is therefore zero.¹³ This is also a logical conclusion in the sense that there is no philosophical difference between the risk free profit of a market arbitrageur and the arbitrageur of labour in the factory. Marx’s comparison of the formal segmentation of the working day under Feudalism and its hidden but parallel segmentation into S/V under capitalism is a useful one here. Under Feudalism military force was used to ensure that agricultural exploitation took place under ‘uninterrupted’ (i.e. ‘risk free’) conditions.¹⁴ Draconian arrangements, through legislation for the subsumption of labour would seem to have a parallel purpose under capitalism (Marx, 1976). Privately enforced rules, for example at the McConnel and Kennedy factory in Manchester (Engels, 1984, pp.190-91) had similar intent. To the extent to which capitalists face risks in the process through imperfect legal protection or for example arising from poor work discipline, these have been accounted for in the analysis of SRP and SR which take the form of labour

¹² Defined as $FCLi/Vi \div FCLm/Vm$, where i represents an individual firm and m represents the aggregate for the economy as a whole. A consistent definition is $(Cov Ri, Rm)/\sigma^2m$, where $R = ARR$ and σ^2m is the variance of Rm .

¹³ Conversely if all costs are fixed, for example in a planned economy, returns covary perfectly and all firms have a beta of 1. It also follows that in the standard economist’s model of perfect competition, which assumes information symmetry where the firm is a price taker and earns normal profits, rents are eliminated by definition and therefore, $SNARR = RF$.

¹⁴ Nassau Senior argued that soldiers’ wages under such conditions became a cost of production, but Marx separates productive activity from arrangements which make productive activity possible (Cohen, 2000, p.31).

rents and are additions to RF . Herein lies a rationale for the panoptica of the Utilitarians.

Even under the relatively abstract circumstances where social arrangements eliminate profit variance, the TER will still be positive. The tie up of capital and the expectation of positive profits, in the aggregate explains positive interest rates (Robinson, 1953, p.87) and in this case positive TER. However, social conditions, in particular the availability of rent seeking opportunities have a direct impact on RF and following from the above reconciliation on TER and SNARR. In public sector investment, where state, as opposed to private finance is used, the provision of collective social capital cheapens the cost of its provision through the progressive elimination of rent seeking opportunities from third parties. Of course, this is only true to the extent that the state actively reduces these opportunities by direct investment in its own right, as opposed to contracting out part of its investment requirement to third parties. In the UK, it has been common for many years to operate a public sector discount rate that corresponds to RF , and which is certainly below the capital market TER (HM Treasury, 1997).¹⁵ It does not follow however, that RF is a proxy for unobservable SNARRs, since RF itself can only be observed by proxy, depending on monetary and financial conditions.

The model is a consistent extension of Marx, since exploitation and hence underlying profit remains is a direct function of S/V . Managers can earn rents at the expense of labour or intermediaries, but cannot ‘exploit’ workers, since exploitation requires capital. In this model, workers cannot only earn rents at the expense of managers and intermediaries, but also at the expense of capital.

Some assumptions, caveats and extensions of the model

The model presented in the above passages has relied for the purposes of clarity on a minimum of definition and avoidance of digression. At this stage, it is important to concede that there are a number of points that require elaboration that is more detailed and a number of potential objections to the above schema.

¹⁵ It also follows that the differential between the social discount rate and the capital market discount rate is greater to the extent that the capital market is underdeveloped (Mishan, 1980, p.287). In the current analysis the degree of capital market underdevelopment is inversely proportional to the extent of capital socialisation.

Perhaps the most important of these is the model's admission of the possibility that rent accrues to labour. Such a possibility would seem to contradict the immiseration hypothesis, although labour rents might be consistent as short-term contradictions of a general tendency. More controversial is the apparent origin of labour rent in the productive process itself.¹⁶ This in turn reflects the assumption that productive forces consist of the instruments of production and raw materials (the means of production), and the labour process, which involves the utilisation of the means of production (Marx, 1976, pp.285-290). These incorporate knowledge assets, for example scientific expertise where applied using technology (Marx, 1974, pp.540, 699, 706). The latter organisational learning, which being routinised, is rooted in the process of production and will provide workers with opportunities to raise real wages if they can avoid accountability and appropriate the efficiency benefits (see for example efficiency wage theories, Katz, 1987). At the same time, the labour process can lead to inventiveness on the one hand through the imagination of individual labourers at the outset of the labour process (Marx, 1976: 284) and alienation through the process of specialisation on the other. To the extent that inventiveness and knowledge that can be privately appropriated, the labour process itself becomes a risky set of activities for the administering capitalist.

Whilst it follows therefore that elements of rent, particularly those accruing to labour and management have their origins in the productive process, other rents arise in the social relations of production, or society's superstructure. These relations govern the individual's interaction with the means of production, specifically in terms of the extraction of surplus, and the relations between individuals, specifically in terms of how surplus, once created is distributed (Cohen, 2000). Aspects of the distribution of surplus referred to by Marx include his theory of capitalist rent (1984, ch.47), explain the superstructure of credit (1984, pp.438-9) and the role of the stock exchange (1984, pp.908-9). The capital markets and institutions of credit face the perennial problem of information asymmetry. Marx (1984, pp.409-413) refers to 'cotton swindles' and 'railway swindles', using these to illustrate appropriation of rents through information asymmetry in credit market in the former case and the stock market in latter. Elsewhere, he suggests that in factory co-operatives of labourers the

¹⁶ The assumptions in this paragraph align the arguments in the present paper with those of Cohen (2000) in favour of the base superstructure separation.

antagonistic nature of supervision costs is eliminated (Marx, 1984, p.387). Insofar as supervision costs arise from information asymmetry between the capitalist and the workplace, it can be seen that they are socially determined. Further, consistent with the model, co-operative organisation and ownership of production will reduce the TER. Otherwise, in equation (2), increasing supervision costs will reduce potential negative rents for the investing capitalist but at the same time reduce the magnitude of TER.

Another important dimension of the model is the socialisation of capital through the pooling of investments utilising portfolio shareholdings.¹⁷ This process influences rent distribution in equations (1) and (2). Two limiting cases can be considered, the first where capital is privately held (unsocialised) and there is therefore no external capital market and therefore no basis for trading private financial assets. The second is where investors are fully diversified; they hold the market portfolio and therefore expect to earn the market return with a beta of one, and therefore the ‘normal’ market rate of return.¹⁸ There are no available routes to change this result, since the sale of securities from the market portfolio of one investor would necessarily upset the full diversification of another, so there is no incentive to trade. If the investor is fully diversified, nothing can be done to discipline the managers of these firms, since an individual shareholder is too weak to organise collectively in order to dismiss them and cannot do so by selling shares without ceasing to be fully diversified. Managerial and labour rents are therefore promoted through poor monitoring, and sustained by fixed cost investments whilst aggregate investor returns decline under the law of the tendency of the rate of profit to fall. In another the limiting case where diversification is conducted through centralising capital under the control of a single firm, the degree of diversification of the investor ceases to be relevant. ‘Normal’ profit is the corollary of centralisation by a fully diversified single capital. Full diversification, whether by the firm or by all investors, is sufficient

¹⁷ Social capital refers to the accumulated wealth attributable to capitalist production. Such capital is individual in the sense that it is represented by monetary claims of individuals, but collective in the sense that the claim is on the pooled capital, not on a specific asset and freely transferable between members (Bryer, 1993, 1997, 2000).

¹⁸ In a complete market, in the Arrow-Debreu sense, the price system is fully informative and there is no noise. Where investors require different levels of liquidity, optimisation occurs through rebalancing the market portfolio with the risk free asset rather than rebalancing within the market portfolio (Bodie et al, 2000).

condition for the outcome of normal profits with average risk. In these conditions, it is difficult for capitalism to continue, since the normal processes of competitive incentive are all but eliminated. It is likely therefore that the conditions for the transformation of capitalism have been reached in these cases.

The general model therefore also provides the basis for understanding historical variations in capitalist organisation and the process of transition from capitalism to socialism. We have seen that the labour process is the source of both exploitation and labour rents reflecting the conflict between creativity and alienation. As capital centralises more means of production are concentrated under the control of a single capitalist organisation. These processes, well documented in the literature (for example Burnham, 1962, pp.87-102, Baran and Sweezy, 1966) explain the rise of hierarchy in diversified firms. In the planned economies, nationalisation has the same effect. Under these conditions of investment in fixed cost processes, where technical advance arises from the cumulative knowledge of the techno structure (Galbraith, 1967) managerial and labour rents, rise. These developments provide the material foundation for the knowledge base of society. Insofar as rents accrue to labour, there is also a material basis for apparent 'embourgeoisification' or 'yuppification' of groups of workers. Similarly, 'labour aristocracies' emerge where these rents are obtained through union organisation. We will leave aside for a moment the question of the split between labour and managerial rents and treat them as an aggregate.

Such rents are at the same time only possible under two conditions, which follow from the interaction of the process of centralisation with the socialisation of capital suggested by the model. These are first the complete absence of monitoring by the institutions of credit and the capital markets and second where monitoring costs are incurred which reduce potential negative rents, but at the same time reduce the magnitude of TER. Supervision costs are themselves opportunities for third parties, for example merchant banks and finance houses to obtain rent. Historically, these costs are high or low depending on the legislative framework and other factors that govern the effectiveness of market based monitoring. Rent earning opportunities arise therefore from the organisation of the productive process and from the characteristics of socialisation and monitoring arrangements. As output levels and monitoring arrangements vary, risk and associated rents are transferred amongst the affected social groups.

The progress of the trade cycle in the cotton industry between 1843 and 1864 illustrates these processes. During slumps, labour may collect rent because actual wages decline slower than the reduced value of labour transferred into production. Therefore, in practice capitalists resist such shifts of value added to labour by attempting to reduce the level of employment through short time and reduce the wage rates and intensity of labour for the retained workers (Marx, 1984, pp.124-137). Legislation such as the Ten Hours Act¹⁹ and increased labour organisation restricted the effectiveness of these strategies. Because workers faced much of the risk associated with downturns in the trade cycle, the family unit was employed as a means of diversifying the family income. Wives, husbands and children therefore abandoned the practice of working en masse in the same factory and instead sought employment at separate establishments (Fowler, 2003, pp.37-73). A second source of labour rents in the cotton industry was asymmetric information and power in the labour process. Senior minders were responsible for recruiting, supervising and paying junior workers, including children ('piecers'). Therefore, they were able to transfer risk associated with reduced total earnings for the sub-group from themselves to their juniors (Ure, 1836, Lazonick, 1979, pp.236-46). At the same time, because the employers wanted labour costs to be as variable as possible, they instituted a piece rate system. Because of complexity in the production process monitoring became expensive and the computation of specific piece rates became increasing difficult (Huberman, 1996, Winterbottom, 1921). Such calculations were delegated to shop floor supervisors and mastered by trade union officials (Fowler, 2003, pp.110-11). Having lost control of the valorisation process on the shop floor, employers negotiated collectively to agree regional piece rate lists with the trade unions. Power shifted decisively to the workers to the extent that with the exception of Oldham, all the productivity gains from the introduction of new machinery accrued to labour rather than capital (Jewkes and Gray, 1935, p.110). The effectiveness of the trade unions provided the material basis for the labour aristocracy of the spinners (or 'barefoot aristocrats', Fowler and Wyke, 1987) and the conservative attitudes of their

¹⁹ An act grudgingly accepted by the employers in order to gain working-class support for the repeal of the Corn Laws (Marx, 1976, p.396). Engels 1984, pp.153-198 provides heart rendering descriptions of the impact of child and female labour on family life and society.

technically minded leaders (Fowler, 2003).²⁰ These examples show that labour aristocracies are built on labour process and information control to create the closed shop entry barrier characteristics hitherto prevalent in the professions and entrenched managerial and technically specialised groups of workers.

Further illustration can be provided by two more recent historical tendencies, the rise of the military-industrial complex and the globalisation of the social ownership of capital. The first has underpinned the rise of managerial capitalism and the second the rise of shareholder capitalism. Although united by ideology, as material processes they are in contradiction. Industrial dominance by requires monopolistic control and internalisation of productive resources and the planning of production, as well as the inefficient capital markets and/or acquiescent regulatory regimes that prevailed before 1980 (Toms and Wright, 2002, Toms and Wilson, 2003). Shareholder capitalism requires the break-up of 'inefficient' (but actually rent consuming) managerial bureaucracies. The AmeriMex Maquiladora Fund invests in labour-intensive US firms in anticipation of them shifting production to Mexico (Korten, 1996, pp.213-14). In the downsizing of corporate America, the principal focus has on white collar rather than blue collar jobs because the costs of the former are less directly related to changes in production (Pilarski, 1992). In the early 1990s, these jobs were lost at the rate of 2500 per day, requiring that previously salaried staff transform themselves into 'the portable executive' (Thompson, 1995). Recent studies have shown that shareholder value can be 'unlocked' by such changes, realising the 'conglomerate discount' (Berger and Ofek, 1996, Lins and Servaes, 1999, Rajan, Servaes and Zingales, 2000).

Privatisation also transfers rents from incumbent managers to shareholder interests. Insofar as privatisations have been imposed by IMF and World Bank structural adjustment programmes, the transactions have been contrived to be risk free from the point of view of the purchasing corporations and their shareholders. Consistent with the general model, risk can only be reduced for one party to a transaction if successfully off-loaded to other social groups. For example instead of Bechtel shareholders bearing the risk of a new dam project in Bolivia, this was passed

²⁰ For example James Mawdsley, the leader of the cotton spinners union stood as a Conservative candidate against Winston Churchill for the Oldham seat in a 1899 by-election (Fowler, 2003, pp.61-2)

onto the Bolivian people via increased water charges (Palast, 2003, pp.173-81).²¹ In similar vein, Bechtel has attempted to get the government to pay for its mistakes in the Boston 'Big Dig' project (Corporate Watch, 2003). These examples show the socialisation of production in reverse so that in contradistinction to expropriation risk, shareholders reduce their risk at the expense of society.

Models of transition from Lenin onwards have relied on the notion of 'socialisation' of the productive process through the extension of planning alone, as in the cases of the Stalinist countries. Such a transition is however incomplete since rent is still possible and notoriously consumable by bureaucratic groups. The cost of capital therefore, as in capitalism, remains above the *SNARR*. A further necessary condition for transition is therefore the abolition of the *SRP* and *SR* elements. This means the continuation of the processes of the development of the credit system and joint stock ownership of capital as implicit abolition of capitalist property. In accounting terms this means the abolition of the information asymmetries that are a necessary condition for the functioning of capital markets on a capitalist basis.

Implications of the Model

The model has several important implications for accounting theory and practice. These are first, the immediate implications of the model in terms of accounting problems such as asset valuation, the formation of the rate of profit and which rate to use in practical situations such as capital investment. Second, there are implications as to the possibility of a Marxist system of accounting.

To deal with each in turn, the first problem, asset valuation can be addressed from the point of view of both physical assets and stock market financial assets. The combined effect of the two components of risk *SRP* and *SR* is that investment in fixed capital and automation subjects the investor to higher degrees of systematic risk, by virtue of cost structure, and specific risk, by virtue of idiosyncratic and possibly firm-

²¹ The right to increase prices that followed a World Bank ministerial meeting in 2000, gave Bechtel a guaranteed rate of return of 16% (Palast, 2003, p.179). The imposition of these water charges resulted in riots, demonstrators being shot dead and the Bolivian government cancelling Bechtel's lease. Bechtel has filed a lawsuit with the World Bank arbitration board against the government for the profits that *would* have been made (Langman, 2002, emphasis added).

specific knowledge. The greater these specificities become the greater the problem of valuation from the perspective of the analyst. Example cases may include the development of information based and other goodwill type assets, which are in high demand in the knowledge-based economy. The valuation problem is compounded further when the intended use of the asset changes. For highly specific assets, the difference between value in use and alternatives such as disposal value may be very significant but unauditable by the market, since analysts cannot predict the degree of asset redeployment in a financial crisis. These are decisions taken by managers, and not necessarily incumbents, since replacement of top management is a common feature of corporate crisis and turnaround (Grinyer and McKiernan, 1990). In such conditions, as the degree of specific risk multiplies the capital market fails to perform its epistemological function. Outside investors also face a fictitious capital risk where managers use information advantages to avoid investment in more efficient replacement assets. It is for this reason that established models such as the CAPM and more recently the Fama and French (1996) three factor model tend to break down when faced with valuing thinly traded financial assets and the securities of firms in financial distress (Toms and Hussain, 2003).

A more general historical problem is that investment in high fixed cost technology is normally not an option for managers. Rather the forces of competition impel them to invest in state of the art machinery and replace labour with capital. As suggested by early classical economists, labour content determines value and provides the momentum for capital intensification in order to utilise labour more effectively. Marx went further and suggested that this led to a declining rate of profit, although counter-acted by certain tendencies. The current paper accepts the long run decline in profit hypothesis, but adds a further dimension. So if investment in specific asset, high fixed cost processes leads to long run falling profits then the bad news for investors is compounded by a tendency to increased risk associated with these investments. At the same time, resource concentration creates the incentive and opportunity for the executives of large corporations to lobby governmental organisations to provide them with risk free investments. Marx only considered the split between constant and variable (labour) capital and the distinction between fixed and variable cost offered here is a useful complement since it allows the incorporation of a modern financial risk perspective, which is unsurprisingly absent from Marx's 19th century analysis. Where labour (variable capital) is in effect a fixed cost, the risk

to investors is potentially compounded. These considerations may help explain why, since around 1980, there has been a tendency for firms to break up their bureaucratic structures and spin-off parts of the productive value chain as part of a concerted attack on ‘fixed cost shelters’ (Armstrong, 2002). This is precisely the behaviour that might be expected in conditions of profit crisis and economic slowdown.

There has been considerable debate (the Cambridge controversies) on the determinants of the rate of profit (Harcourt, 1972, Desai, 2002). Although all protagonists accepted that the rate of profit had social (e.g. class, institutional) determinants that were exogenous to the economic sphere, some important points were unresolved, including the value of capital itself, the transformation of quantities into price and the hypothesis of declining profit rates. Sraffa’s identification of switching points, which Robinson had previously implied that under certain conditions might lead to a switch backwards from a more mechanised technique to a less mechanised one posed awkward questions for neo classical economics (Sraffa, 1960, Robinson, 1953 and c/f Hahn’s, 1982 ‘special case’ argument). These unanswerable criticisms were therefore buried for ideological reasons (Ferguson, 1969, Tinker, 1980, p.153). Meanwhile, although referred to as the (Cambridge) *capital* controversies, these debates ignored the capital market as a valuation mechanism because it was irrelevant to the debate as then framed.

The above analysis has specifically considered this important aspect and showed that capital market valuation models can offer perspective on these debates. In parallel with the Cambridge controversies, the model in the current paper shows that by incorporating rents in the formation of realised and expected rates of return, multiple equilibria are possible. As suggested by Tinker (1980) differing expectations can lead to the coexistence of different techniques consistent with the switching model (Kurz, 1990). The model presented above complements rather than contradicts the view that uniform profit rates constitute a special case. Not only can differential profits exist, but also with the addition of asymmetric information and rent, switching points are more difficult to identify. Specifically this is because there are two important implicit assumptions in the switching model, both relaxed in the earlier discussion. These are first that labour is a variable factor cost and second that there is perfect information about rates of profit. On the latter point, the reswitching problem can be traced back to the financial conception of capital, or a free fund of resources that can be switched from one use to another without difficulty (Pasinetti and

Scazzieri, 1990, p.144). In the model in this paper, labour cost can be partially fixed and there is information asymmetry about profit rates. Further, the model as it stands does not need any assumptions about supply and demand and does not therefore implicitly contradict Sraffa's critique. One difference is that the reswitching model requires an assumption that the pattern of labour application to the production process is intermittent rather than continuous otherwise switching points are not generated (see the example data in Pasinetti, 1966, pp.504-5 and Tinker, 1980, p.149). An advantage of the model presented in this paper is that it relies on continuous output and labour transfer into output assumptions. A limitation of the model is that it has difficulty if labour transfer to output is assumed intermittent.

Finally if the classical view as extended here is correct, or is preferred to the Hicksian view of economic income (Hicks, 1946), then the yardstick against which investments should be judged is not the CAPM based discount rate, but the accounting rate of return. As shown earlier, this is reconcilable to the CAPM based discount rate but has a differing conceptual basis. Instead of assuming that utility maximising investors require compensation for risk, the ARR approach acknowledges that rent through exploitation of information asymmetry comprises an important component of total return. Under two opposite extreme conditions, perfect competition zero arbitrage and state organisation of investment, the required ARR equals RF. To the extent that social conditions gravitate towards either extreme, then $SNARR = RF$.

Although these results are arguably important analytically for our understanding of capitalism and conditions for social transition, they do not provide support for the use of Marxian accounting rules under capitalist conditions. On the contrary, the recognition of labour rents accruing to highly skilled workers in conditions of information asymmetry only serves to underline the problematic nature of goodwill type assets for valuation purposes.

Another problem for the Marxist accounting project is that the S/V ratio in any given firm is unobservable.²² Whereas proxies might be derived from the ratio of monetary amounts actually expended on each factor of production this ignores the

²² This is also part of the broader 'transformation problem' (see Desai, 2002 for a review). Simply put, the problem is that it is necessary to assume a rate of profit (and hence S/V) to arrive at capital values or alternatively to assume capital values (and hence prices) in order to arrive at a rate of profit.

problem of what constitute ‘unnecessary’ non-productive overheads. The presence of such overheads has to be admitted in order to prevent the logical corollary of the labour theory of value being that commodities produced by inefficient labour have higher value (Macve, 1999, p.598). It therefore follows that any theory of accounting that rests on the labour theory of value must also recognise that relative inefficiencies will inevitably mask the actual S/V in any specific set of production arrangements. An essential condition for a Marxist accounting system also consistent the labour theory of value is therefore the notion of socially necessary cost, or a standard cost corresponding to a ‘normal’ level of activity. At the aggregate level, according to Marx, profits and surplus values are equalised where commodities are priced at cost plus the general rate of profit. By general rate, Marx means the rate achieved by the average firm rather than the most efficient firm for any given organic composition of capital. The most efficient firm would seem to be the one that corresponds most closely to ‘social necessity’, since others by definition are burdened with ‘unnecessary’ non-productive overheads. Since the average firm is below the most efficient firm, if social necessity is based on the average, as it is according to Bryer (1994, pp.318-19) and Marx (1984, ch. IX), its costs can never be more than an inaccurate proxy for the normal cost of production. For this additional reason, therefore Macve (1999, p.599) is entirely correct in his conclusion that such prescribed standards cannot have any meaning.

Although the above framework recognises an objective element, namely the S/V relation as a source of value, such value cannot be established objectively where social relations create incentives for non-disclosure and hence information asymmetry. The existence of rent is itself a sufficient condition that prevents the realisation of the primary objective of financial reporting under capitalism, which is according to Bryer (1999) to hold management accountable to total social capital. Following the logic above, if information asymmetries are removed, for example by transparent accounting mechanisms, then capitalism itself cannot function. Information transparency is therefore both the logical and consistent basis for a Marxist system of accounting as well as its objective.

Conclusions

The paper has shown that fundamental problems associated with constructing a Marxist system of accounting are associated with definitional categories arising from the base and superstructure dichotomy. More specifically these are the dialectical opposites of labour creativity and alienation in the labour process. In addition, Marx's analysis requires extension to deal with problems of risk and moral hazard. Their incorporation requires acknowledgement of the coexistence of managerial and labour rents alongside capitalist exploitation. In these conditions, exploitation is a risky activity. The paper has shown that labour rents provide an alternative model of risk rooted in the labour theory of value, thereby avoiding the marginalist assumptions that risk is *sui generis* and that the source of value is capital itself. However, the coexistence of labour rents with risky exploitation precludes any objective basis for the separation of the components of the labour process into value-based categories and hence a Marxist system of accounting derived from the formulations in the three volumes of *Capital*. The result complements the transformation problem, thereby confirming the impossibility of a 'Marxist' system of accounting. Insofar as accounting is a reflex of social arrangements, it is therefore sensible to look for examples of 'feudal', 'capitalist' and 'socialist' accounting, where those social conditions prevail. The base superstructure dichotomy and interaction is helpful in explaining accounting change and the transition processes. Mismatches, meanwhile, for example Marxist systems of accounting under capitalist conditions, make far less sense.

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